

TRANSMISSION MECHANISM FOR A DYNAMIC ORNAMENT

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

[0001] The present invention relates to a transmission mechanism, and
5 particularly to a transmission mechanism for a dynamic ornament.

2. PRIOR ART

[0002] There are many kinds of ornaments, most of which are static ornaments. Since a dynamic ornament can change the tedious nature of a static environment and have a visually pleasing effect, the dynamic
10 ornament is obviously more attractive. In general, the dynamic ornament has a transmission mechanism therein to drive movable parts thereof to perform a predetermined cyclical motion.

[0003] However, a conventional transmission mechanism for a dynamic ornament cannot ensure smooth and stable operation, which adversely affects
15 the dynamic effect of the ornament or even cannot provide the dynamic effect. Furthermore, the conventional transmission mechanism is complicated.

SUMMARY OF THE INVENTION

[0004] Accordingly, an object of the present invention is to provide a
20 transmission mechanism for a dynamic ornament which operates smoothly and stably thereby improving the dynamic effect of the dynamic ornament.

[0005] Another object of the present invention is to provide a transmission mechanism for a dynamic ornament which is simple.

[0006] To achieve the above-mentioned objects and more, a transmission
25 mechanism for a dynamic ornament in accordance with the present invention

includes a housing, a motor, a transmission seat assembly and a transmission device. The housing includes a base. The motor is fixed to the base with a motor shaft extending therefrom. The transmission seat assembly is fixed to the base and includes a pair of first seats connected to the base. The transmission device is connected to the transmission seat assembly and includes a sliding set and a gear set. The sliding set includes a pair of mating portions, a pair of connecting portions respectively connecting with the mating portions, a pair of eccentrics and a transmission shaft connected between the eccentrics. The mating portions are respectively slidable along the first seats. A mating hole is defined in each of the mating portions for rotatably receiving the eccentric therein. The transmission shaft is rotatably connected to the transmission seat assembly. The connecting portions extend through the base. The gear set connects between the motor and the transmission shaft of the sliding set thereby driving the transmission shaft to rotate.

[0007] The housing comprises a first cover threadedly fixed to the base, and a receiving post extends from the first cover.

[0008] The transmission seat assembly includes a pair of second seats connected to the base, and the transmission shaft is rotatably connected to the second seats.

[0009] The first and second seats are symmetrically and oppositely connected to the base, each first seat includes a pair of guiding posts with a pair of grooves being respectively defined in the inner sides of the guiding posts, and the mating portions of the transmission device are slidable along the grooves.

[0010] The mating hole of the mating portion is elliptical.

[0011] A pair of slots is defined in opposite sides of the base for extension of the connecting portions of the sliding set.

[0012] A plurality of openings with different sizes is defined in the first

cover for allowing light to pass therethrough and saving material.

[0013] The gear set includes a motor gear and a transmission shaft gear, the motor gear is fixed to the motor shaft of the motor, and the transmission shaft gear is fixed to the transmission shaft.

5 [0014] The gear set further includes an idler wheel which is rotatably attached to an inner side of the transmission seat assembly and is mated with the motor gear and the transmission shaft gear.

[0015] The housing further comprises a second cover which is connected with the free ends of the connecting portions.

10 [0016] The housing is adapted to be received in a decorative casing of a dynamic ornament, and the receiving post of the first cover is adapted to connect with movable parts of the dynamic ornament.

[0017] The second seats are formed between the first seats, each second seat includes a support and a cap fixed to the support, and a shaft hole is defined
15 between the support and the cap for receiving the transmission shaft.

[0018] Other objects, advantages and novel features of the present invention will be drawn from the following detailed embodiment of the present invention with attached drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

20 [0019] Fig. 1 is a perspective view of a dynamic ornament according to an embodiment of the present invention;

[0020] Fig. 2 is an exploded view of a transmission mechanism for a dynamic ornament in accordance with an embodiment of the present invention;

[0021] Fig. 3 is a crosssectional view of a transmission mechanism for a dynamic ornament according to an embodiment of the present invention;

[0022] Fig. 4 is a crosssectional view showing the transmission mechanism being used in a dynamic ornament according to an embodiment of the present invention;

[0023] Fig. 4A is an enlarged view of circled portion A in Fig. 4; and

[0024] Fig. 5 is a schematic view showing wings of an eagle ornament according to an embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0025] Referring to Figs. 1-3, a transmission mechanism for a dynamic ornament of the present invention includes a housing 10, a motor 20, a transmission seat assembly 30 and a transmission device 40. The housing 10 includes a base 11, a top cover 12 and a bottom cover 16. A lamp 13 is fixed to the base 11. A pair of slots 17 is defined in opposite sides of the base 11. The top cover 12 and the base 11 are threadedly fixed together and cooperatively define a receiving space for receiving the motor 20, the transmission seat assembly 30 and the transmission device 40. A receiving post 14 extends from the top cover 12 for receiving an ornament sleeve 51 which is used to connect with movable parts of the dynamic ornament. A pair of latches 141 is formed oppositely at the receiving post 14 for fixing the ornament sleeve 51 to the receiving post 14. A plurality of openings 15 with different sizes is defined in the top cover 12 for allowing light to pass therethrough and saving material. A plurality of through holes 161 is defined in the bottom cover 16 corresponding to the slots 17 of the base 11. The motor 20 is fixed to the base 11 with a motor shaft 21 extending therefrom. A photic colorful plate 22 is attached to the free end of the motor shaft 21 and above the lamp 13. When the motor 20 is rotated, the photic

colorful plate 22 will rotate with the motor shaft 21. So, when the lamp 13 is turned on, the light from the lamp 13 will go through the rotating photic colorful plate 22 whereby multicolored light occurs and shines. Furthermore, a music loaded circuit (not shown) may be fixed to the base 11
5 for provide music or sound.

[0026] The transmission seat assembly 30 is fixed to the base 11 or is integrally formed with the base 11. The transmission seat assembly 30 includes a pair of first seats 31 and a pair of second seats 32 both symmetrically and oppositely connected to the base 11. Each first seat 31
10 includes a pair of guiding posts 311 with a pair of grooves 312 being respectively defined in the inner sides of the guiding posts 311. Each slot 17 is defined between each pair of the guiding posts 311. The second seats 32 are formed between the first seats 31. Each second seat 32 includes a support 321 and a cap 322 threadedly fixed to the support 321. A shaft hole
15 323 is defined between the support 321 and the cap 322. The support 321 and the cap 322 may be formed integrally with the shaft hole 323 defined therethrough.

[0027] The transmission device 40 connected to the transmission seat assembly 30, includes a sliding set 41 and a gear set 43. The sliding set 41
20 includes a pair of mating portions 411, a pair of connecting portions 415 respectively connecting with the mating portions 411, a pair of eccentrics 413 and a transmission shaft 414 connected between the eccentrics 413. Each mating portion is slidably received in the grooves 312 between the guiding posts 311. An elliptical mating hole 412 is defined in each of the mating
25 portions 411 for rotatably receiving the eccentric 413 therein. The transmission shaft 414 is rotatably received in the shaft holes 323 of the second seats 32. The connecting portions 415 extend through the slots 17 of the base 11, each with a pair of screw holes 416 defined in the free end thereof. The bottom cover 16 is attached to the free ends of the connecting portions

415 with a plurality of screws 417 extending through the through holes 161 and threadedly engaging with the screw holes 416. The gear set 43 includes a motor gear 431, an idler wheel 432 and a transmission shaft gear 433. The motor gear 431 is fixed to the motor shaft 21 of the motor 20. The idler wheel 432 is rotatably attached to an inner side of one of the supports 321 of the second seat 32 and is mated with and so driven by the motor gear 431. The transmission shaft gear 433 is fixed to the transmission shaft 414 and is mated with and so driven by the idler wheel 432. The idler wheel 432 is configured for facilitating configuration of the transmission device 40. So, alternatively, the idler wheel 432 may not be needed and the motor gear 431 directly mates with the transmission shaft gear 433.

[0028] As described above, the motor 20 drives the gear set 43 to rotate. The transmission shaft 414 and the eccentrics 413 rotate with the gear set 43. The eccentrics 413 rotate within the elliptical mating hole 412 and drive the mating portions 411 to relatively slide along the grooves 312 of the guiding posts 311 of the first seat 31. Since the connecting portions 415 are fixed to the bottom cover 16 and the mating portions 411 are immobile, the guiding posts 311 move along the mating portions 411 up and down. Thus, the top cover 12 and the base 11 are moved up and down, as shown in Fig. 3.

[0029] Referring to Figs. 1 and 4, the transmission mechanism of the present invention is applied to an eagle ornament which includes a decorative casing 100 receiving the transmission mechanism therein. The decorative casing 100 includes a pair of wings 60 each with an end thereof inserting into the ornament sleeve 51. The ornament sleeve 51 is securely received in the receiving post 14.

[0030] Also referring to Figs. 4A and 5, the pair of wings 60 includes right and left wings 61. Each of the right and left wings 61 extends through a through hole 101 of the decorative casing 100. A ring 70 is fixedly received

in the through hole 101. A protruding post 71 extends from the ring 70 for engaging with a positioning hole 102 of the decorative casing 100. A spring 72 and a screw 73 connecting with the spring 72 are received in the ring 70. The screw 73 connects with the wing 61. When the wings 60 are driven by
5 the top cover 12 to move up and down, the wing 61 will sway up and down at the same time and thus the wings 60 of the decorative casing seem to fly thereby increasing the dynamic effect of the eagle ornament.

[0031] Therefore, the transmission mechanism for a dynamic ornament can operate smoothly and stably thereby improving the dynamic effect of the
10 dynamic ornament. Furthermore, the transmission mechanism for a dynamic ornament is simple.

[0032] It is understood that the invention may be embodied in other forms without departing from the spirit thereof. Thus, the present example and embodiment are to be considered in all respects as illustrative and not
15 restrictive, and the invention is not to be limited to the details given herein.